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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/066,168 04/24/98 KATSUBE

M 10089/4

023838 IM62/1204  
KENYON & KENYON  
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WASHINGTON DC 20005

 EXAMINER

FORTUNA, A

 ART UNIT PAPER NUMBER

1723

DATE MAILED:

12/04/00 *18*

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

## Office Action Summary

Application No. 09/066,168	licant(s) Katsube et al.
Examiner Ana Fortuna	Group Art Unit 1723

Responsive to communication(s) filed on Sep 20, 2000

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

### Disposition of Claims

Claim(s) 1 and 2 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1 and 2 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekino et al. (4,293,419) or Sekino et al and EP 0053635. Sekino et al. is discussed in the record. Sekino et al discloses positioning two hollow fiber(12, 12') membrane modules within a housing having a feed tube within hollow fiber bundles, the hollow fibers having one end closed (14, '14), the feed tubes communicating each other (11, 11' and 6), a permeate discharge at the open end of the fibers (13, 13', 10, 10'), and outlets for the non-permeated liquid discharge in communication with the gap and the outside of the container wall (9, 9') , the outlet is located at the end of one of the hollow fiber modules for the last modules and at the end of the first module for the first module. Locating the out at the end of the pressure vessel (1) is not disclose by Sekino et al, however it is conventional in the art. Modifying Sekino' apparatus for discharging at the end of the housing or pressure vessel, e.g. near the closed end of the fibers it would have been obvious to one skilled in the pertinent art, since positioning the outlet for removal of concentrate at the end of the module is conventional either in axial or perpendicular direction. In Sekino et al solids accumulated at the

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end of the chamber (4) will be removed by the discharge (9), either the discharge is provided at the right or left side or axially with the module and in contact with the retentate chamber. Sekino et al fails to disclose the discharge or non-permeate positioned at one end or the pressure vessel containing the hollow fiber modules, however discloses discharge at the end of the modules or the last module, e.g. exit (9). Reference '635, of record shows the retentate or non-permeate outlet at the end of the housing. It would have been obvious to one skilled in the art at the time the invention was made to positioned the outlet (9) in Sekino et al at the end of the housing, and further located the outlet axial with respect to the modules in the housing as disclosed in '635, or laterally as disclosed in Sekino et al. Placing the exit of retentate at the end of the housing, e.g. for hollow fibers modules operated for passing feed outside the hollow fibers will remove solids accumulated at the end of the housing. Conventionally solids tend to accumulate more at the end of the membranes based of the membrane fouling theory, in crossflow operations.

3. References 5,139,669, 5,814,179, 5,380,433 of record, show testate of the art in housings or pressure vessels with conduits connected to the inside of the vessel and located at the end of the vessel for inserting hollow fibers membranes. The conduits can be alternatively used as inlet or outlet depending on whether the membrane is feed through the bore or through the outside of the fibers, when the feed is placed inside the housing the conduit or port can be used for discharging non-permeate, and inherently avoiding accumulation of solids in the retentate at the end of the hollow fibers.

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4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

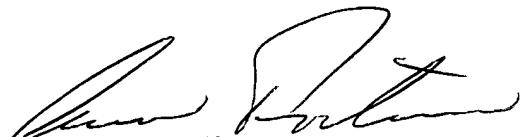
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana Fortuna whose telephone number is (703) 308-3857.  
Facsimile No. (703)305-7718.

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ANA FORTUNA  
PRIMARY EXAMINER  
GROUP 1300

Ana Fortuna

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December 3, 2000